

Assessment Of Platelet Count And Its Correlation With Severity Of Pre-Eclampsia

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Abstract

Background: Pregnancy induced hypertension (PIH) is the most common medical disorder of pregnancy. The present study was conducted to assess platelet count and its correlation with severity of pre-eclampsia.

Materials & Methods: 108 suspected cases of pregnancy induced hypertension (cases) and group II had controls were assessed for platelet count.

Results: Age group 20-25 years had 14 cases of mild PIH, 24 of moderate and 6 of eclampsia. 26-30 years had 16 cases of mild, 22 of moderate and 4 cases of eclampsia and 31-35 years had 6 of mild, 14 of moderate and 2 of eclampsia. Group II had 56, 42 and 10 respectively.

Conclusion: Estimation of platelet count being simple economical and rapid investigation can be used for early detection of severity of preeclampsia. There were more cases of preeclampsia with low platelets.

Key words: platelets, preeclampsia, hypertension

INTRODUCTION

Pregnancy induced hypertension (PIH) is the most common medical disorder of pregnancy contributing significantly to maternal/ fetal morbidity & mortality. It's a global problem complicating 10-17% of pregnancies¹. Preeclampsia manifests as new-onset hypertension and proteinuria after 20 weeks of pregnancy.² it complicated 5–8% of pregnancies and 9%–26% of global maternal death, a considerable proportion of preterm birth, and maternal and newborn morbidity. The majority of patients remain in mild to moderate group and does not have any major obstetric problems.³ However, in certain percent of patients, the risk to mother as well as fetus can be significant.⁴ Possible development of DIC, intracranial hemorrhage, renal failure, retinal detachment, pulmonary oedema, liver rupture, abruption placentae, intrauterine growth restriction, fetal demise, maternal death is always there.⁵

Thrombocytopenia is the most common hemostatic abnormality seen to occur in 11-29% of patients. Detection of thrombocytopenia is important as it is one of the preventable factors contributing to some cases of life threatening cerebral and hepatic hemorrhage.⁶ The frequency and intensity of thrombocytopenia varies and depends on intensity of disease process and duration of PIH syndrome. The current understanding of preeclampsia is that disruption causes in placentation by various genetic and epigenetic variables.^{7, 8} In preeclampsia, endothelial dysfunction can lead to hemostatic changes. To yet, no well-established and fool proof techniques for preventing preeclampsia have been developed.^{9, 10} the present study was conducted to assess platelet count and its correlation with severity of pre-eclampsia.

MATERIALS & METHODS

The present study comprised of 108 suspected cases of pregnancy induced hypertension. All gave their written consent for the participation in the study.

Data such as name, age etc. was recorded. Group I had cases and group II had controls. Clinical findings and relevant investigations were noted. Blood samples were taken and under aseptic precaution by venipuncture of anterior cubital vein into EDTA and PLAIN bulbs and sample was sent for hemoglobin, total leucocyte count, serology, platelet counts, LFT, RFT, PT, PTTK, INR while urine sample was collected to check urine albumin by dip-stick method. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I: Pre-eclampsia and age group

Subjects	20-25	26-30	31-35
Group II	56	42	10
Mild PIH	14	16	6
Moderate PIH	24	22	14
Eclampsia	6	4	2

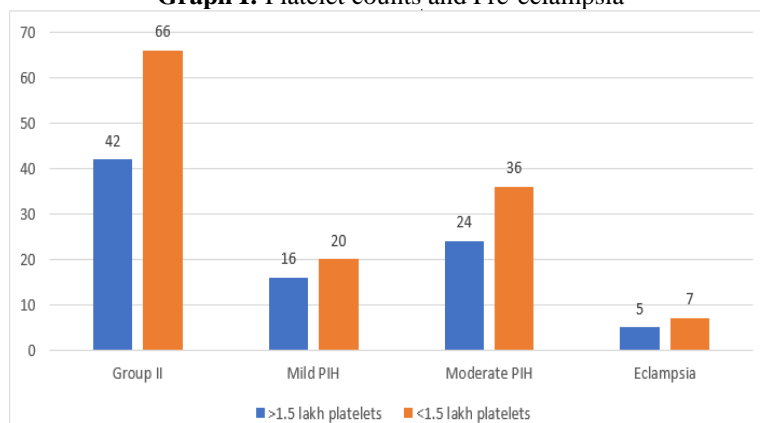
Table I shows that age group 20-25 years had 14 cases of mild PIH, 24 of moderate and 6 of eclampsia. 26-30 years had 16 cases of mild, 22 of moderate and 4 cases of eclampsia and 31-35 years had 6 of mild, 14 of moderate and 2 of eclampsia. Group II had 56, 42 and 10 respectively.

Table II: Platelet counts and Pre-eclampsia

Subjects	>1.5 lakh platelets	<1.5 lakh platelets	P value
Group II	42	66	0.05
Mild PIH	16	20	0.04
Moderate PIH	24	36	0.02
Eclampsia	5	7	0.05

Table II, graph I shows that >1.5 lakh platelets and <1.5 lakh platelets in group II was seen in 42 and 66, mild PIH in 16 and 20, moderate PIH in 24 and 36 and eclampsia in 5 and 7 respectively. The difference was significant (P< 0.05).

Graph I: Platelet counts and Pre-eclampsia



DISCUSSION

Pre-eclampsia is a multisystem disorder of unknown etiology characterized by development of hypertension of 140/90 mm Hg or more with proteinuria after 20 weeks of in a previously normotensive and non-proteinuric patient.^{11,12,13} Severe pre-eclampsia is characterized by blood pressure of >160/110mmHg, proteinuria of more than 5g/24hrs, sudden oliguria, cerebral or visual disturbances, HELLP syndrome, severe epigastric pain, retinal hemorrhages and laboratory parameters demonstrating thrombocytopenia, hemolysis or abnormal liver function tests.^{14,15,16} The present study was conducted to assess platelet count and its correlation with severity of pre-eclampsia.

We found that age group 20-25 years had 14 cases of mild PIH, 24 of moderate and 6 of eclampsia. 26-30 years had 16 cases of mild, 22 of moderate and 4 cases of eclampsia and 31-35 years had 6 of mild, 14 of moderate and 2 of eclampsia. Group II had 56, 42 and 10 respectively. Rita et al¹⁷ assessed the platelet count and its correlation with the severity of pre-eclampsia. Among the 100 PIH cases, majority belonged to age group of 20-25 yrs with a mean of 22.74. 66% of PIH were primigravidas and 53% belonged to 37-40 weeks of gestation, 68% cases were severe preeclampsia and 16% Of the cases had thrombocytopenia.

We found that >1.5 lakh platelets and <1.5 lakh platelets in group II was seen in 42 and 66, mild PIH in 16 and 20, moderate PIH in 24 and 36 and eclampsia in 5 and 7 respectively. Bawore et al¹⁸ determined the pattern of platelet indices in women with preeclampsia in our study setting. A total of 180 pregnant women were included in the study. Platelet count and platelet crit levels tend to decrease as pre-eclampsia becomes more severe. In contrast, the mean platelet volume and platelet distribution widths were significantly increased with the severity of preeclampsia (P<0.001). Platelet distribution width and mean platelet volume had statistically significant positive relationships with mean arterial pressure. The best metric for predicting preeclampsia was platelet distribution width.

The limitation the study is small sample size.

CONCLUSION

Authors found that estimation of platelet count being simple economical and rapid investigation can be used for early detection of severity of preeclampsia. There were more cases of preeclampsia with low platelets.

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